WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

ROUTE DEVELOPMENT PLAN

SR 548 MP 0.00 to MP 13.85

Blaine to Grandview Road I/C

APPROVED BY:

Region Administrator, NW Region — Date: 1/28/97

CONCURRENCE:

State Design Engineer — Date: 3/20/97

Planning Office Manager — Date: 3/20/97

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SR-548

ROUTE DEVELOPMENT PLAN

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Prepared by:

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PLANNING SECTION
NORTHWEST REGION

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Executive Summary

SR-548 is locally known as Grandview Road, Blaine Road, Bell Road and Peace Portal Drive. The state route is a two-lane road from the I-5/Grandview Road Interchange north of Ferndale to the I-5/Peace Portal Drive Interchange in Blaine. The highway is about twenty three kilometers (14 miles) long. This Route Development Plan (RDP) covers the entire length of SR-548 from KP 0.00 (MP 0.00) to KP 22.28 (MP 13.85). Presently, SR-548 is classified as a rural collector highway serving the west side of I-5 between Ferndale and Blaine and provides access to Birch Bay and Semiahmoo Point.

Developments within the corridor are mostly residential, industrial, recreational, commercial, and agricultural related. SR-548 will require several improvements to safely and effectively handle future traffic growth. This growth will likely continue increasing at varying rates throughout the corridor. Seasonal peak traffic occurs during summertime due to the existing of a significant number of summer residences and recreational opportunities.

To accommodate expected development, several recommendations are made in this RDP. The need for additional capacity for SR-548 was established by projecting 1994 traffic volumes to the year 2015. Projections for the year 2015 traffic volumes were made by using equivalent compounded annual growth rates derived from the Whatcom County regional traffic model. If this highway remains a two-lane facility, it is projected that the roadway will operate at the following Levels Of Service (LOS) by the year 2015:

- LOS "D" between I-5/Grandview Rd. and Vista Drive/Grandview Rd.;
- LOS "C" between Vista Drive/Grandview Rd. and Drayton Harbor Rd./Blaine Rd.;
- LOS "D" between Drayton Harbor Rd./Blaine Rd and "H" St./Peace Portal Dr., and
- LOS "D"/"E" between "H" St./Peace Portal Dr. and I-5/Peace Portal I/C.

Given the seasonal nature of traffic volumes, the projected LOS during summertime of 2015 will be slightly worse due to greater volumes of summertime, tourist and recreation related, traffic.

The Whatcom County Comprehensive Plan, dated September 1994, envisions the lands along the SR-548 corridor in the vicinity of Birch Bay as a major center of land-use activity. Birch Bay is a resort community, which has the most development and the most development potential of any unincorporated area in the county. Development of the envisioned land uses in this area would intensify the existing congestion at both the northern and southern ends of the route as well as possibly increasing the accident rates along SR-548 unless corrective actions are taken. These corrective actions may include channelization and signalization at various intersections where accident rates are high. The intersection at Bell Rd./Peace Portal Drive falls into a “High Accident Location” category for improvement consideration. Listed below are the major recommendations of this Route Development Plan:

- Improve the section of SR-548 between the I-5/Grandview Road Interchange at KP 0.00 (MP 0.00) to the Portal Way/Grandview Road Intersection at KP 0.47 (MP 0.29) to prevent a level of service deficiency within the 20 year planning period of this document. The projected level of service deficiency can probably be addressed by installing a traffic signal, channelization improvements, or some combination of both. This section of highway should be monitored periodically to determine the most cost effective strategy to address the problem.

- Develop SR-548 as a four-lane highway with curb, gutter and sidewalk on both sides from the Peace Portal Drive/"H" Street Intersection at KP 21.94 (MP 13.57) to the I-5/Peace Portal Drive Interchange at KP 22.28 (MP 13.85).

- When cost effective, replace the existing bridge over Dakota Creek (Br. No. 548/10).

- When cost effective, replace the existing bridge over California Creek (Br. No. 548/5).

- Add minimum 1.2 meter (4 foot) shoulders to the route where they do not currently exist in conjunction with pavement overlay projects to accommodate bicycle and pedestrian traffic.

- Signalization and/or channelization revisions at various major intersections.

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SR-548 VICINITY MAP

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SR-548 VICINITY MAP

SECTION 1: ROUTE SECTION LOCATION, FUNCTION AND CLASSIFICATION:

A Route Development Plan (RDP) is intended to identify the future improvements needed for a designated section of state highway to accommodate safety and capacity requirements at a future date, usually 20 years thereafter. This plan encompasses many factors synthesized into a recommended highway design. When approved, this long range plan will:

1. Provide guidance for the region's prioritization process for future projects;
2. Provide direction for the determination of impact mitigation measures for proposed development;
3. Provide input to the statewide budgetary process; and
4. Coordinate with local jurisdictions for growth management planning.

SR-548 is located in the northwestern corner of Whatcom County. It is bounded on the north by the Canadian border, on the south by the city of Ferndale, on the west by the community of Birch Bay and on the east by I-5. This RDP covers the entire length of SR-548 from KP 0.00 (MP 0.00), Grandview Rd./I-5 interchange to KP 22.28 (MP 13.85), I-5/Peace Portal Drive interchange and is about 23 kilometers (l4 miles) long.

This plan is part of the Washington State Department of Transportation (WSDOT) Northwest Region long range Route Development Planning Program. Figure 1, the area map, illustrates the location of SR-548 in relation to the WSDOT Northwest Region. Figure 2, a vicinity map of SR-548, is a closer view of the highway in relation to the cities and local landmarks located near it.

This plan is intended to support local work done to meet the requirements of the Growth Management Act (GMA), as mandated by ESHB 2929 and RSHB 1025. Travel forecasts are based on local land use projections. WSDOT will work with local agencies to coordinate transportation improvements with land use development as the local agencies do their capital facilities planning. No time lines for improvements within the 20-year planning cycle are projected. This document will be amended as needed to react to local planning.

Metric units are being used in this document with the English equivalent immediately following in parenthesis. This document uses a conversion factor of 1.609 to change MP to KP directly. All other metric conversions use the standard conversions shown in the WSDOT Design Manual. Final approval will be issued by the WSDOT Northwest Region Administrator.

Federal Functional Classification

The primary purpose of SR-548 is to provide state route access to the vicinity of Birch Bay State Park. The highway also facilitates transportation of people and goods between the Washington state and Canada and connects the rural/industrial/resort areas of northwestern corner of Whatcom County with Ferndale and I-5. This highway serves the community of Birch Bay and the city of Blaine to the west of I-5. Secondarily, SR-548 also services residential and commercial developments located along its length. Both the federal functional classification and

the state functional classification of the highway is Rural Collector (R3)[1]. The federal functional classification is rural major collector. This route also serves as an alternative to I-5 from Ferndale to Blaine for some users.

SR-548 is not designated as part of the National Highway System (NHS). As such, all highway plans and work should be designed to be in conformance with a Modified Design Level (WSDOT Design Manual, Section 430). Modified Design Level is the design guideline for non-NHS routes and it replaces the old "3R" design standards.

SR-548 is listed as a Freight and Goods Transportation System Roadway. The north-south portion (Blaine Rd./Grandview Rd. to the I-5 I/C in Blaine) has a tonnage class of T-4 (100,000 to 300,000 tons carried annually). The east-west portion of SR-548 (I-5 I/C at Grandview Rd. to the Blaine Rd./Grandview Rd. I/S) has a tonnage class[2] of T-3 (300,000 to 5,000,000 tons carried annually).

Level of Access Control

Under the Revised Code of Washington (RCW) 47.50, SR-548 is an access controlled facility. The goal of this law is to establish levels of access management that will preserve the safety and operational characteristics of the highway. Based on the Washington Administrative Code (WAC) 468-51 and 468-52, which implement the RCW, SR-548 has been assigned the following classes for access management:

Table 1 Level of Access Control

Kilometer Post(Mile Post)	Section	Class
0.00 (0.00) to 0.08 (0.05)	I-5 I/C (Southern Terminus)	Limited Access
0.08 (0.05) to 12.39 (7.70)	I-5 to Alderson	2
12.39 (7.70) to 18.60 (11.56)	Alderson Rd. to Blaine C. L.	3
18.60 (11.56) to 22.17(13.78)	City of Blaine	4
22.17 (13.78) to 22.28 (13.85)	I-5 I/C (northern terminus)	Limited Access

Access management classes are numbered from one to five, with Class 1 the most restrictive, and Class 5 the least restrictive per the Northwest Region Access Classification, dated July 28, l993. In the case of Classes 1 and 2, if alternative access is available to non-state highways, no access is allowed to the state highway except at major intersections. Also, both permitted private driveways and public intersections are to be located a minimum distance apart (determined by assigned class). Classes 3, 4, and 5 balance land use with access, and can allow two-way left-turn lanes under certain conditions. Classes 4 and 5 allow the most closely spaced access, and are generally reserved for slower speed areas that are already largely built out. Nonconforming accesses are allowed under certain conditions.

Related Transportation Facilities

There are no bus terminals, rail terminals, park and ride lots, or other related transportation facilities along the route. Whatcom Transit Authority provides service to the city of Blaine on Routes Numbers15A, 15B, and 15X.. A park and ride lot is expected to be built in Blaine in the vicinity of the Blaine library, approximately one block east of SR-548 at about MP 13.5 (H Street).

Other Related Facilities

There is a school west of SR-548 in the community of Birch Bay, a fire station east of SR-548 in the city of Blaine, and mail delivery within the general area of the highway corridor. Also, there are three existing at-grade railroad crossings. The crossings are located in the vicinity of Portal Way (MP 0.31), Kickerville Rd. (MP 5.16), and Bell/Peace Portal (MP 11.78) intersections.

Present Land Use and Zoning

The zoning classifications adjacent to SR-548 are residential, commercial-industrial, agricultural and business parks. The southern terminus (Grandview Rd.) is dominated by combination of industrial, manufacturing and business parks and rural residential land uses. The middle section (Grandview Rd./Blaine Rd. to Blaine Rd./Birch Bay/Lynden Rd.) is predominantly occupied by rural residential, agricultural, and crossroad commercial land uses, and the north section is mostly rural and urban residential land with high commercial land use within the downtown area of Blaine.

SECTION 2: DESCRIPTION OF EXISTING FACILITY:

History

The legal description of SR-548 reads: "A state highway to be known as State Route 548 is established as follows[4]: Beginning at the junction with a State Route No. 5 in the vicinity north of Ferndale, thence westerly and northerly to a junction with State Route No. 5 in Blaine."

In April l99l, WSDOT took over the jurisdiction of several Whatcom County roads and city of Blaine streets to form SR-548. This transfer was part of the Route Jurisdiction Transfer authorized per Section 62 of ESB 5801 and signed into law May 21, 1991, adding a new section to chapter 47.17 RCW. The transferred roadways are, from south to north, I-5 Interchange at Grandview Road west along Grandview Road to the Grandview Road/Blaine Road intersection, then north along Blaine Road to Bell Road, then north along Bell Road to Peace Portal Drive, then northwest along Peace Portal Drive to the I-5 Interchange at Peace Portal Drive in Blaine.

A recent project in the vicinity of the Fingalson Creek/ North Star Road intersection, KP 5.57 (MP 3.45), replaced several large, existing culverts. No other significant projects have been constructed within the study area since it became a state highway.

An Air Force radar tracking station was located south of Alderson Road and west of Blaine Road (SR-548) at Section 3l, Township 40 N and Range l E. The 68 acre facility was built in the late 1930s or early part of the 1940s. This facility was sold to the Water District, Washington State Archives and Whatcom County Park Department in 1991[5]. The purpose of the former station was to provide early warning (radar) and to track flying objects coming into the United States. The station was a major source of traffic in the area during its operation. The current use is predominantly storage for materials and equipment.

Lane and Shoulder Width

SR-548 is a two-lane facility for the entire length of the highway. The lane width varies from 3.0 m (10 ft) to 3.6 m (12 ft.) wide with 0.61 m (2 ft) to 2.44 m (8 ft) shoulder widths on both sides of the highway. There are no special purpose lanes.

No-Passing Zones

The existing two-lane highway has approximately 50 percent no-passing zones in both directions. Table 2 gives the locations of the no-passing zones.

TABLE 2 No Passing Zones[6] (Range Tracking Date-12/1/91)

NORTHBOUND INCREASING		SOUTHBOUND DECREASING	
Beginning No. Passing	**Ending No. Passing**	**Beginning No. Passing**	**Ending No. Passing**
KP 0.00 (MP 0.00)	KP 0.63 (MP 0.39)	KP 22.28 (MP 13.85)	KP 20.24 (MP 12.58)
KP 1.33 (MP 0.83)	KP 1.56 (MP 0.97)	KP 19.67 (MP 12.23)	KP 19.45 (MP 12.09)
KP 2.80 (MP 1.74)	KP 3.91 (MP 2.43)	KP 19.16 (MP 11.91)	KP 18.21 (MP 11.32)
KP 4.18 (MP 2.60)	KP 4.39 (MP 2.73)	KP 17.26 (MP 10.73)	KP 16.49 (MP 10.25)
KP 4.65 (MP 2.89)	KP 4.75 (MP 2.95)	KP 16.25 (MP 10.10)	KP 15.99 (MP 9.94)
KP 5.00 (MP 3.11)	KP 5.15 (MP 3.20)	KP 15.69 (MP 9.75)	KP 15.28 (MP 9.50)
KP 5.41 (MP 3.36)	KP 5.91 (MP 3.67)	KP 15.04 (MP 9.35)	KP 14.90 (MP 9.26)
KP 6.18 (MP 3.84)	KP 6.47 (MP 4.02)	KP 14.64 (MP 9.10)	KP 13.88 (MP 8.63)
KP 6.85 (MP 4.26)	KP 7.11 (MP 4.42)	KP 13. 05 (MP 8.11)	KP 12.39 (MP 7.70)
KP 7.53 (MP 4.68)	KP 8.30 (MP 5.16)	KP 11.47 (MP 7.13)	KP 11.04 (MP 6.86)
KP 8.78 (MP 5.46)	KP 9.03 (MP 5.61)	KP 10.51 (MP 6.53)	KP 10.62 (MP 6.60)
KP 9.28 (MP 5.77)	KP 9.56 (MP 5.94)	KP 9.72 (MP 6.04)	KP 9.03 (MP 5.61)
KP 9.96 (MP 6.19)	KP l0.30 (MP 6.40)	KP 8.56 (MP 5.32)	KP 7.74 (MP 4.81)
KP 11.01 (MP 6.84)	KP 11.28 (MP 7.01)	KP 7.24 (MP 4.50)	KP 7.08 (MP 4.40)
KP 12.57 (MP 7.81)	KP 12.76 (MP 7.93)	KP 6.71 (MP 4.17)	KP 6.36 (MP 3.95)
KP 13.64 (MP 8.48)	KP 14.43 (MP 8.97)	KP 6.10 (MP 3.79)	KP 5.20 (MP 3.23)
KP 14.74 (MP 9.16)	KP 14.90 (MP 9.26)	KP 4.94 (MP 3.07)	KP 4.39 (MP 2.73)
KP 15.12 (MP 9.40)	KP 15.48 (MP 9.62)	KP 4.02 (MP 2.50)	KP 3.07 (MP 1.91)
KP 15.82 (MP 9.83)	KP 15.99 (MP 9.94)	KP1.82 (MP 1.13)	KP 1.56 (MP 0.97)
KP 16.25 (MP 10.10)	KP 17.09 (MP 10.62)	KP 0.74 (MP 0.46)	KP 0.00 (MP 0.00)
KP 18.07 (MP 11.23)	KP 19.10 (MP 11.87)		
KP 19.39 (MP 12.05)	KP 19.60 (MP 12.18)		
KP 20.24 (MP 12.58)	KP 22.28 (MP 13.85)		

The existing speed limits for SR-548 vary from 40 KMPH (25 mph) to 80 KPH (50 mph). Table 3 shows the existing speed limits at various locations[7]. The existing speed limit signs are posted with English units (miles per hour).

TABLE 3 Existing Speed Limits

Location	Speed Limit
Grandview Rd. O'xing SR-5 to Jct. Vista Drive	70 KMPH (45 mph)
Vista Drive to Jct. Blaine Rd.	80 KMPH (50 mph)
Jct. Blaine Rd. to Jct. Bay Rd.	55 KMPH (35 mph)
Jct. Bay Rd. to Dakota Cr. Bridge	70 KMPH (45 mph)
Dakota Cr. Bridge to Harrison Ave.	55 KMPH (35 mph)
Harrison Ave. to SR-5 U-Xing NB	40 KMPH (25 mph)

The design speeds vary from 50 KMPH (30 mph) to 90 KMPH (55 mph). The highway traverses generally level terrain from Grandview Rd./SR-5 O'xing to Vista Drive, from Kickerville Rd. to Birch Bay/Lynden Rd. and from Hillsdale Cemetery Rd. to SR-5 NB U'xing in Blaine. The highway traverses rolling terrain from Vista Drive to North Star Rd. and from Alderson Rd. to Hillsdale Cemetery Rd.

Right of Way

The existing right of way widths of SR-548 vary from 15.2 meters (50 feet) to 39.6 meters (130 feet). These widths were determined by using the Whatcom County Assessors Maps and Peace Portal Drive Street Improvement Plans from the city of Blaine and is not guaranteed to be accurate. Table 4 lists locations and their corresponding right of way widths.

TABLE 4 Existing Right of Way

FROM	TO	EXIST. R/W WIDTHS
KP 0.00 (MP 0.00) I-5/Grandview Rd.	KP 9.54 (MP 5.93) Grandview Rd/Blaine Rd.	18.3 m (60 ft.)-39.6m (130 ft.)
KP 9.54 (MP 5.93) Grandview Rd./Blaine Rd.	KP 11.18 (MP 6.95) Blaine Rd./Bay Rd.)	21.3 m (70 ft.)
KP 11.18 (MP 6.95) Blaine Rd./Bay Rd.	KP 14.42 (MP 8.96) Blaine Rd./Birch Bay-Lynden Rd.	15.2 m. (50 ft..)
KP 14.42 (MP 8.96) Blaine Rd./Birch Bay-Lynden Rd.	KP 16.00 (MP 9.95) Blaine Rd./Lincoln Rd.	18 m (60 ft.)
KP 16.00 (MP 9.95) Blaine Rd./Lincoln Rd.	KP 16.56 (MP 10.29) Blaine Rd./Loomis Trail	12 m. (40 ft.)-18.3m (60 ft)
KP 16.56 (MP 16.56) Blaine Rd. Rd./Loomis Trail	KP 18.63 (MP 11.58) Dakota Creek Br.	18.3 m. (60 ft.)
KP 18.63 (MP 11.58) Dakota Creek Br.	KP 20.22 (MP 12.57) Peace Portal Drive/Madison St.	27.4 m. (90 ft.)
KP 20.22 (MP 12.57) Peace Portal Drive/Madison St.	KP 21.46 (MP 13.34) Peace Portal Drive/Boblett St.	24 m. (80 ft.)
KP 21.46 (MP 13.34) Peace Portal Drive/Boblett St.	KP 14.73 (MP 13.78) Peace Portal Drive/Marine Drive	24 m. (80 ft.)

Horizontal, Vertical Alignment and Sight Distance Restriction

When SR-548 was acquired in 1991 by the state as a Route Jurisdictional Transfer, no geometric data was supplied by the transferring jurisdictions to the state. There are no current funding scenarios for the state to be able to collect the necessary data now or in the foreseeable future. When funding becomes available, documentation for this route will be completed.

Bridges and Structures

There are two bridges along the SR-548 corridor. These bridges are listed in Table 5 with some pertinent data.

TABLE 5 EXISTING BRIDGES[8]

Location	Bridge Name & Number	Width curb to curb	Length	Year Built
KP l6.49 (MP 10.25)	California Creek Br. 548/5	7.3 m (24 ft.)	31.7 m (l04 ft.)	1956
KP 18.57 (MP 11.54)	Dakota Creek Br. 548/10	7.3 m. (24 ft.)	55.5m. (182 ft.)	1956

Both bridges are inspected annually. The California Creek bridge has no weight restrictions in effect. According to the area Bridge Maintenance office, there is a problem with erosion at the abutments due to the use of wooden piers when the bridge was first built. These wooden piers are now rotting and cannot be replaced without destroying the bridge. The maintenance office has also indicated that the elevation of the bridge bottom deck was close to the mean water level and would likely be subject to flooding if the creek's water level comes up too high.

The Dakota Creek Bridge has a 30 kip (15 ton) weight restriction limit in place. The county first imposed the limit and WSDOT has kept it in place. The structure is apparently a combination of wooden approaches with steel used for the middle span. This restriction has caused some problems with local businesses and emergency (fire) vehicles due to the more circuitous route that must be taken to avoid this bridge.

Intersection Channelization, Traffic Control, and Signalization

There are no existing two-way left-turn lanes within the city of Blaine. There are no traffic signals on SR-548. There are all-way red flashing stop lights (beacons) at the intersections of Vista Drive/SR-548 and Birch Bay/Lynden Road/SR-548. There is an amber flashing warning light at the Alderson Road intersection (amber for SR-548, red for Alderson Rd.). Most of the intersections are controlled by stop sign. Vista Drive, Kickerville Road, Bay Road, and Birch Bay/Lynden Road intersections are all-way-stop controlled intersections. Table 6 lists the intersections on SR-548, which have left-or right-turn channelization currently in place.

TABLE 6 CHANNELIZATION

Location	Intersection	Channelization (Lt. or Rt.)
KP 18.99 (MP 11.80)	SR-548/Bell Rd./Peace Portal Drive	Rt. turn in southbound direction
KP 21.83 (MP 13.57)	SR-548/"H" Street	Lt. turn in southbound direction
KP 21.94 (MP 13.64)	SR-548/"G" Street	Lt. turn in southbound direction
KP 22.17 (MP 13.78)	SR-548/SB I-5 On-Ramp	Lt. turn in southbound direction
KP 22.28 (MP 13.85)	SR-548/NB I-5 On-Ramp	Lt. turn in northbound direction

Roadside Master Plan

The Route Development Plan guidelines recommend that a roadside master plan be completed as part of the planning process. However, no additional funding has been allocated for this purpose. Therefore, a general description of the roadside master planning concepts and condition on SR-548 is included at this time.

The Roadside[9]

The roadside encompasses the area between the roadway pavement edge and right-of-way boundaries, including median strips and auxiliary facilities such as rest areas, roadside parks viewpoints, historic markers, pedestrian and bicycle facilities, wetland mitigation areas, park and ride lots, and maintenance facilities adjacent to the roadway. The Washington State Department of Transportation is responsible for the stewardship of roadsides along the 11,000 kilometers (7,047 miles) of state highway, including hundreds of auxiliary facilities. The roadside is managed to fulfill the following three functions:

1. Operational functions, such as access control, clear zones, sight distance, driver delineation, signing, trails, bikeways, and utility accommodations, provide safe and multi-use roadsides.
2. Environmental functions, such as water quality, wetland and sensitive area protection, noxious weed control, noise control, habitat preservation, air quality improvement, and erosion control, protect the natural environment and enhance the built environment.
3. Visual functions, such as scenic view preservation, distraction screening, roadway and adjacent property buffering, and provisions for aesthetic harmony, support the roadside's operational and environmental functions and promote a positive quality of life.

The Roadside Master Plan process includes a roadside classification system. State Route 548 is classified according to its roadside characteristics. There are two basic roadside classifications: natural and built. Natural character refers to a landscape in which indigenous vegetation and land forms predominate. Human elements and structures are rare or insignificant in the overall context. Natural character includes the forest and open roadside classification. Built character indicates a landscape in which human elements and structures are notable or predominant in the overall context. Built character includes the rural, semi-urban, and urban roadside classifications. SR-548 falls within the built classification and is further broken into three categories. They are as follows:

1. I-5/Grandview Rd. I/C to Grandview Rd./Blaine Rd. Rural
2. Grandview Rd./Blaine Rd. to Blaine Rd./Birch Bay/Lynden Rd. Rural
3. Blaine Rd./Birch Bay/Lynden Rd. to I-5/"D" St. I/C Rural

The first section (Grandview Road) is dominated by combination of industrial, manufacturing and business parks and rural residential land uses.

The second section (Grandview Rd. to Birch Bay/Lynden Rd.) is predominantly occupied by industrial, rural residential, and cross-road commercial land uses. Off the southwest end of this section of SR-548 is a public recreational area, Birch Bay State Park. The park is not adjacent to, or visible from, the highway. Most of the surrounding properties can, and probably will, be developed, which will lead to a semi-urban status.

The third section (Birch Bay/Lynden Rd. to I-5/"D" St. I/C) is occupied mostly by urban residential and commercial land uses. It is classified as rural because "urban" is defined as population centers of 5,000 or more. Blaine's current population is approximately 3,500.

Within the built roadside environment of SR-548, any excess right of way should be retained for future screening/buffering and/or environmental functions as adjacent land uses change. The vegetation within the SR-548 right of way should be maintained and managed to meet WSDOT Design Manual sight-distance requirements.

Future plans for roadway improvements within the SR-548 right of way should address roadside preservation, restoration or enhancement. The goal is to provide a unified visual perspective for the particular roadside character based on the guidelines presented in the Roadside Classification Plan. The Roadside Classification Plan calls for the development of a route specific master plan which will detail methods for roadside treatment that will remain consistent through planning, design, construction, and maintenance activities. The development of a Roadside Master Plan for SR-548 should take into consideration the roadside character classifications provided in the Roadside Classification Plan. When completed the Roadside Master Plan will provide an approach for the treatment of the roadside which is consistent with the policies and treatment strategies outlined in the Roadside Classification Plan.

Urban Section

For the purpose of WSDOT's project prioritization process, the entire length of SR-548 is classified as rural. However, the segment from Lincoln Rd. to the I-5/Peace Portal Drive interchange is within the city of Blaine's urban growth boundary. The northernmost portion of the segment has the highest density of commercial use. As one travels south, the density decreases and the land use changes to more residential and less commercial. South of the Lincoln Road intersection the current land use is mostly residential and agricultural with some cross road commercial use.

Utilities[10]

There are various existing utilities located within the highway corridor. They are Janson Inc. Water line, Old Settlers Water Association, Puget Power, Birch Bay Water and Sewer District, and Cascade Natural Gas Co. Some of these utilities may require relocation during any improvement work and/or widening of the highway.

Interchanges and Intersections

There are two full-diamond interchanges along the route. The first, located at KP 0.00 (MP 0.00), is the Grandview Road/I-5 Interchange and the second, located at KP 22.28 (MP 13.85), is known as the "D" Street/I-5 Interchange. Figures 3 and 4, on pages 2-8 and 2-9 show the configurations of these interchanges. There are 43 at-grade intersections throughout the length of SR-548.

There is a partial interchange located on I-5 in south Blaine. There has been an ongoing discussion between the city of Blaine, WSDOT, and the FHWA about the possibility of improving the partial into a full interchange. This improvement is not currently listed as a proposal in the WSDOT's System Plan as a mobility project. (For more information on the System Plan, see Section 4.) While this interchange is not physically located on SR-548, the existing ramp configuration is almost directly connected to SR-548 in the Peace Portal/Bell Road intersection area. The completion of the I-5 interchange to a full configuration will require further traffic analysis to determine the full impact on SR-548 and the projection of future traffic volumes.

FIGURE 3
GRANDVIEW ROAD/I-5 INTERCHANGE

FIGURE 4
"D" STREET/PEACE PORTAL DRIVE/I-5 INTERCHANGE

SECTION 3: PRESENT AND PROJECTED OPERATING CONDITIONS:

Existing Traffic Condition

The l994 Annual Traffic Report provides a traffic summary history in terms of the Annual Average Daily Traffic (AADT). Table 7 lists the AADT for some locations along SR-548.

TABLE 7 Annual Average Daily Traffic

Mainline Location	MP	l992	1993	1994
After Ramp SR-5	0.09			7,000
Before Jct. Vista Drive	0.97	3,100*	4,200	4,400
After Jct. Vista Drive	0.97	2,400*	2,700	2,800
Before Jct. Kickerville Rd.	4.93	2,200*	2,000	2,300
After Jct. Kickerville	4.93	2,300*	2,400*	2,600
After Jct. Grandview Rd.	5.93	570*	590	610
Before Jct. Alderson Rd.	7.70	1,300*	1,400	1,400
Before Jct. Birch Bay/Lynden Rd.	8.96	2,500*	1,900*	2,000
After Jct. Birch Bay/Lynden Rd.	8.96	2,500*	2,200*	2,300
Before Jct. Fleet Rd.	9.83	1,900*	1,900	2,000
Before Jct. California Trail Rd.	10.21		2,200*	2,300
After Jct. California Trail Rd.	10.21		2,600*	2,700
Before Jct. Peace Portal Drive	11.80		5,300*	5,600
After Jct. Hughes Ave.	12.14		5,800*	6,000
After Jct. 4th St.	12.98	5,200*	5,400	5,600
Before Jct. Marine Drive	13.78		9,600*	10,000
Before US Customs Parking	13.83		9,000*	9,400

* Based on actual counts

Existing Turning Movement (TM) counts and Average Daily Traffic (ADT) volumes within the study area were collected by the Northwest Region Traffic Studies Group. Traffic data collected by the city of Blaine was also used. State Route 548 is a seasonal route with peak traffic volumes in the months of July and August. To account for the seasonal variation of traffic volumes on the route, seasonal adjustment factors provided by the WSDOT Olympia Service Center (OSC) Traffic Section were applied to some of our traffic data. These factors are summarized in Table 8.

TABLE 8 Seasonal Adjustment Factors

Month	l992	l993	1994
July/August	0.88	0.88	0.81*
December	1.04	0.97	1.35*

*From TRIPS 1994 Seasonal Group Factor Table (155) for group "Other Rural West." State Route 548 is listed under group "Non Interstate Urban." We used "Other Rural West" group since the seasonal factors obtained are more reasonable based on traffic counts taken in the Northwest Region on SR-548 during these months. This reduces to a seasonal adjustment factor of 1.22 x AADT.

SR-548 was divided into five logical segments for mainline traffic analysis. AADT for each of these segments was calculated. Peak hour traffic for the SR-548 mainline segments was derived by applying a K Factor taken from WSDOT's Transportation Information and Planning Support Report (TRIPS) to the averages of the AADT for each of the segments. Directional Distribution Factors (D%) and truck percentages also are obtained from WSDOT TRIPS, and percent no-passing zones were taken from WSDOT's Northwest Region Traffic Operations surveys. Table 9 summarizes the two-way peak-hour traffic in Vehicles Per Hour (VPH), directional distribution, truck percentages, and roadway geometric data on the SR-548 mainline:

TABLE 9 Two-Way Peak Hour Traffic

Segment Location	1994 Peak Hour Traffic VPH	1994 August Peak Hour Traffic VPH	Directional Distribution D %	% No-Passing zones	% Trucks
l. I-5 to Vista Drive	416	508	55	51	4.4
2. Vista Drive to Blaine Rd.	247	301	65	53	6.6
3. Blaine Rd. to Drayton Harbor Rd.	196	239	54	45	12.4
4. Drayton Harbor Rd. to H Street	537	655	54	64	13.8
5. H Street to I-5	790	964	60	100	13.8

The existing (1994) LOS at mainline locations and selected intersections within the project limits are shown in Tables 9 & 10 using the above traffic data. For unsignalized intersections, the LOS is defined as the LOS of the worst single movement in terms of movement delay. This LOS analysis was conducted using Highway Capacity Manual (HCM) methodology (Special Report 209). All-way-stop controlled intersections were analyzed using the Highway Capacity Manual's new software for unsignalized intersections (including all-way stops) which calculates average intersection delay.

TABLE 10 Mainline Volume and LOS PM Peak Hour (1994)

Segment Location	Mile Post	Annual Volume	August Volume	Annual LOS	August LOS
1. I-5 to Vista Drive	0.00-0.97	416	508	B	C
2. Vista Drive to Blaine Rd.	0.98- 5.93	247	301	B	B
3. Blaine Rd. to Drayton Harbor Rd.	5.94- 10.85	196	239	B	B
4. Drayton Harbor Rd. to H Street	10.86- 13.57	537	655	C	D
5. H Street to I-5	13.58-13.85	790	964	D	D

TABLE 11 SR-548 Intersection LOS PM Peak Hour (1994)

Intersection Location	Kilometer Post (Mile Post)	Annual LOS	August LOS
Grandview Rd./I-5 NB Ramps	0.00 (0.00)	B	B
Grandview Rd./I-5 SB Ramps	0.14 (0.09)	A	B
Grandview Rd./Vista Drive *	1.56 (0.97)	A	A
Grandview Rd./ Kickerville Rd. *	7.93 (4.93)	A	A
Grandview Rd./Blaine Rd.	9.54 (5.93)	A	A
Blaine Rd./Bay Rd. * ** **	11.18 (6.95)	A	A
Blaine Rd./Birch Bay Lynden Rd. *	14.42 (8.96)	A	B
Blaine Rd./Drayton Harbor Rd..	17.46(10.85)	B	C
Bell Rd./Peace Portal Drive	18.99(11.80)	C	D
Peace Portal /Hughes Ave.	19.53 (12.14)	B	B
Peace Portal Drive/H Street	21.83 (13.57)	B	C
Peace Portal Drive/I-5 SB Ramps	22.17 (13.78)	B	C
Peace Portal Drive/I-5 NB Ramps	22.28 (13.85)	C	F

Future Land Use

Zoning for future uses is similar to what already exists in the area. It is likely that the rural residential land in the northern section will eventually be developed into a more urban residential density level.

* Currently has all-way stop control

** The SR-548 (Blaine Road)/Bay Road intersection has operational traffic conflicts resulting from a hour-legged intersection positioned right next to two additional legs on Bay Road.

Pedestrian and Bicycle Facilities

SR-548 is not a state designated bicycle touring route per the March 1996 State Highway System Plan. Generally, there is limited shoulder area and often those shoulders are unpaved. There is an existing bike path, which is separated from the roadway that follows Semiahmoo Parkway and runs adjacent to Semiahmoo Golf Course, Semiahmoo Park and public tidelands. Another bike path follows Drayton Harbor Road and runs adjacent to the southern shore of Drayton Harbor and Semiahmoo Golf Course. These two bike paths intersect near the west shore of Drayton Harbor and are well used for recreational purposes and possibly some limited commuter use by both pedestrians and bicyclists.

Many roads within the vicinity of SR-548 are used as Class IV bikeways. Class IV bikeways are not designated bikeways but rather a shared roadway that bicycles and motorized vehicles both use. By law, motor vehicles must share the road with bicyclists except where bicycles are specifically prohibited. The heaviest bicycle volumes occur along Birch Bay Drive between Shintaffer and Alderson Roads, as well as along the popular summer touring loop around Birch Point to Semiahmoo Point. Other frequently used Class IV bikeways are along other portions of Birch Bay Drive, Birch Point Rd., and Semiahmoo Drive. These bikeways connect Birch Bay State Park, Whatcom County parks, public tidelands, and Semiahmoo Parkway. Portions of Whitehorn Rd., Grandview Rd., Jackson Rd., Bay Rd., Alderson Rd. and Harbor View Rd. are also used by bicyclists.

A general desire, indicated by local officials as well as by the public, is to have, at the very least, shoulder improvements along SR-548 to accommodate bicycle (and pedestrian) traffic. The north-south section of SR-548 (Grandview Rd./Blaine Rd. intersection north to the city of Blaine) was the area that most people wanted to see improved. The city of Blaine has included a Class I (separated bicycle/pedestrian facility) along SR-548 in the city limits within their Comprehensive Plan.

Bus Pullouts and Routes

Whatcom County Transit Authority operates public transportation in the Blaine area[11]
Routes 15A and 15B serve the city of Blaine locally. Bus 15X, the Blaine Express, travels north on I-5 from Bellingham to Blaine four times daily and south on I-5 from Blaine to Bellingham six times a day. Bus pullouts are not being planned at this time.

Rest Areas

Currently, there are no rest areas located along SR-548. State Route 548 is less than sixty miles long; therefore, a rest area is not warranted.

Traffic Forecasting & the Whatcom County Traffic Model

The traffic analysis for the year 2015 was done using output from the Whatcom County 1993 T-Model 2 regional model. This model uses as its main inputs general land-use patterns, geometric data on roadways, and the highway network in the county. The model is calibrated by replicating current land use information on housing and employment, and then applying it to the existing roadway network. Model simulated traffic volumes were compared to actual volumes, and the model calibrated to match actual volumes. The model was then used to calculate traffic volumes on its roadway network for the year 2010.

We examined the model's traffic volume outputs for the year 1993 and the year 2010 and calculated an equivalent compound annual growth rate for the model links. These model links correspond to relatively short roadway segments along SR-548 and roadway segments intersecting SR-548. We then extended these same equivalent compound annual growth rates to the year 2015 and used them to obtain the 2015 traffic volumes used in our analysis.

Table 12 shows volume and LOS projections for mainline annual and summertime peaks in the year 2015. Table 13 shows the projected annual and summertime LOS for several intersections on SR-548. The differences shown reflect the seasonal variation for vehicle volumes on this state route. It should be noted that the traffic projections for average annual, and seasonal peak hour may not be directly proportionate.

TABLE 12 SR-548 Mainline, Volume & LOS - Yr. 2015 Peak-Hour Traffic

Segment Location	Length	Annual VPH	August VPH	Annual LOS	August LOS
I-5 to Vista Drive	1.56 km	788	962	C	D
Vista Drive to Blaine Road	7.98 km	622	760	C	D
Blaine Road to Drayton Harbor Road	7.92 km	344	420	C	C
Drayton Harbor Road to H-Street	4.37 km	880	1075	D	D
H-Street to I-5	0.45 km	1200	1466	D/E	E

TABLE 13 SR-548 Intersection LOS - Yr. 2015 PM Peak Hour

Intersection Location	Kilometerpost (Mile Post)	Annual LOS	August LOS
Grandview Rd./I-5 NB Ramps	0.00 (0.00)	C	E
Grandview Rd./I-5 SB Ramps	0.14 (0.09)	B	C
Grandview Rd./Portal Way	0.47 (0.29)	F/B*	F/B*
Grandview Rd./Vista Drive +	1.56 (0.97)	B	B
Grandview Rd./ Kickerville Rd. +	7.93 (4.93)	B	B
Grandview Rd./Blaine Rd	9.54 (5.93)	B	B
Blaine Rd./Bay Rd. +	11.18 (6.95)	A	A
Blaine Rd./Birch Bay Lynden Rd.+	14.42 (8.96)	E/C*	F/B*
Blaine Rd./Drayton Harbor Rd.	17.46 (10.85)	C	F
Bell Rd./Peace Portal Drive	18.99 (11.80)	F/C*	F/C*
Peace Portal /Hughes Ave.	19.53 (12.14)	B	C
Peace Portal Drive/H Street	21.83 (13.57)	D	F
Peace Portal Drive/I-5 SB Ramps	22.17 (13.78)	C	F/B*
Peace Portal Drive/I-5 NB Ramps	22.28 (13.85)	F/D*	F/C*

*Yr. 2015 Peak-Hour Level of Service with signalization and/or channelization
+All-Way Stop Controlled Intersection

Accident History

The 1996 High Accident Locations (HAL) Report lists only one HAL at SR-548, Runge Ave. to Peace Portal Drive between KP 18.97 (MP 11.79) to KP 18.90 (MP 18.90). There were eight accidents recorded at this HAL by the WSDOT between January 1, 1993 to December 31, 1994 on SR-548. The type of accidents were rear-end, enter at angle and pedestrian type of accidents. Of these eight accidents, there were four injuries. The recommended action for this HAL is the signalization of the intersection. An interim solution may be found with channelization improvements and access control.

There were 108 total accidents recorded by the WSDOT on SR-548 for the time period of April 1, 1992 to March 31,1995. There has been one fatal accident (May 30, 1992) on SR-548 since it became a state route. This fatal accident occurred at the intersection of Alderson Road and Blaine Road during dry, clear weather. Vehicles hitting fixed objects were the most predominant accident type making up 35 percent of all accidents reported during the analyzed period. The second most predominant accident type was alcohol related accidents, which contributed 29 percent of the total. The other types of accidents were rear-end, driveway entering, and hitting parked cars, which all contributed to the remainder of the total accidents. (See Appendix C for more detail.)

The accident rates and accident fatality rates on SR-548 are compared with other State Route rates with the same classification (Rural Collector, R 3). All SR-548 rates and all state average rates have been computed using the following formulas:

$$\textbf{Accident Rate} = \frac{\textbf{(Number of Accident) x (1 Million)}}{\textbf{(Section Length*) x (AADT**) x (365 days)}}$$

Fatal Accident = (Number of Fatal Accidents) x (100 Million)
(Section Length*) x (AADT) x (365 days)**

* If the length is less than one mile, it is excluded from the formula and the length is set equal to one mile.
** Average Annual Daily Traffic

Table 14 is a summary of the 1993 Washington State Highway Accident Report (based on the average accident rates by functional class).

TABLE 14 1993 Highway Accident Report Summary

	Rural-Collector Highway (R3)	All Highways
Total Accidents	1,855	42,005
Accident Rate *	1.86	1.65
Fatal Accidents	24	267
Fatal Accident Rate **	2.40	1.05

* Per Million Vehicles Miles of Travel

** Per Million Vehicle Miles of Travel

Table 15 is a summary of the 1993 accident rates for SR-548:

TABLE 15 SR-548 Accident Rates (Jan. 1, 1993-Dec. 31, 1993)

KP (MP) From-To	Section Length Kilometer (Mile)	1993 AADT	Total Accidents	Accident Rate
0.00 (0.00) - 1.56 (0.97)	1.56 (0.97)	4,200	1	0.65
1.58 (0.98) - 9.54 (5.93)	7.98 (4.96)	2,700	5	1.02
9.56 (5.94) - 17.46 (10.85)	7.92 (4.92)	1,900	19	5.28
17.47 (10.86) - 21.83 (13.57)	4.38 (2.72)	5,400	9	1.68
21.85 (13.58) - 22.28 (13.85)	0.45 (0.28)	10,000	6	1.64

There were no fatal accidents on SR-548 for the period from January 1, l993 to December 31, 1993; therefore, the 1993 Fatality Rate for SR-548 is zero.

The section of SR-548 between KP 9.56 (MP 5.94) to KP 17.46 (MP 10.85) has a higher than average accident rate as compared to other state highways with a similar functional classification. However, this section does not experience accidents to the degree necessary to qualify as a high accident corridor (HAC). An accident analysis was performed for this section of the route to determine if there was an evident underlying cause for the accident experience. The accident statistics indicate that there were 38 total accidents within this section of highway and, of those, 23, or 60 percent, were the result of vehicles striking fixed objects located along the roadside. This section of road is predominately narrow (10-foot lanes) and has narrow (2-4 foot), gravel shoulders. Widening the roadway (coupled with shoulder widening & paving) and removing fixed objects from the roadside clear zone could help eliminate many of these accidents.

The Washington Traffic Safety Commission started the "Highway Corridor Safety Program" in 1992. WSDOT is a joint partner in this program. The Commission develops corridor programs consisting of low-cost, near-term solutions for routes that meet some general criteria. The criteria for corridor selection are:

- High crash rates (those state routes with the highest fatal and disabling injury collision rates),
- Correctable problems (collision problems must be of the type that will respond to low-cost, near-term solutions), and
- Support (strong, local leadership and local support for developing and carrying out an action plan).

SR-548 does not have a "Highway Corridor Safety Program" plan in place.

SECTION 4: ROUTE IMPROVEMENT:

Washington's Transportation Plan

The Washington State Transportation Commission through the efforts of the Washington State Department of Transportation is meeting the future challenges facing the state's transportation systems by developing Washington's Transportation Plan (WTP) 1997-2016. This plan addresses transportation facilities owned and operated by the state, including state highways, the Washington State Ferries, and state-owned airports. It also addresses facilities and services that the state does not own, but has an interest in, as they are vital to the entire transportation system. These include public transportation, freight rail, intercity passenger rail, marine ports and navigation, non-motorized transportation, and aviation. This planning is being carried out in cooperation with local governments, regional agencies, and private transportation providers to ensure that Washington's transportation system provides convenient, reliable, efficient, and seamless connections for all citizens.

WTP presents a sensible, 20-year vision for the state-owned and state-interest modes of transportation. Transportation needs have been identified for each mode and "service objectives" with associated action strategies have been developed to address those needs. The cost to deliver the service objectives and action strategies over the next 20 years has been calculated at $104 billion.

State Highway System Plan

The state-owned component of WTP is commonly referred to as the State Highway System Plan (SHSP). The SHSP is comprised of four main categories:

- Maintenance - Maintain state highways on a daily basis to ensure safe, reliable, and pleasant movement of people and goods.
- Preservation - Preserve the highway infrastructure cost effectively to protect the public investment.
- Traffic Operations - Operate the highway transportation system safely and efficiently.
- Improvements - This program is concerned with making the highway system work better. There are four subprograms which were developed for this purpose. They are:

    - Mobility - Improve mobility within congested corridors.
    - Highway Safety - Provide the safest possible highways within available resources.
    - Economic Initiatives - Support efficient and reliable freight and goods movement. Support tourism development and other Washington industries. Reinforce the state's competitive position in international trade.
    - Environmental Retrofit - Retrofit state highway facilities as appropriate to reduce existing environmental impacts.

Needed transportation projects were identified based on achieving WSDOT service objectives over the 20-year period. The total cost estimate associated with meeting all service objectives over the 20 year time frame exceeds $27 billion. Three different scenarios were looked at in relation to funding the improvements to meet the identified 20-year needs. The three possible revenue scenarios were:

1. No revenue increase for 20 years.
2. Revenue increases based on a historical trend line.
3. Fully funded 20-year System Plan.

The Transportation Commission selected the trend line scenario to establish a baseline funding "cutoff" to establish priorities for all needed projects. The Maintenance, Traffic Operations, and Preservation programs are fully funded. The current goal of the Transportation Commission is to fully fund the Safety Subprogram, the Environmental Retrofit Subprogram, and the Economic Initiative Subprogram of the 20-year System Plan. Projects within these subprograms will be prioritized to determine the order in which needed improvements will be constructed.

Using the 20-year historical trend-line funding scenario, the Mobility Subprogram will not be fully funded. There is simply not enough revenue to address all the capacity needs in the state. Two different lists of mobility projects are included in the Highway System Plan. The first is financially constrained and contains the projects that are likely to be funded (based on the 20-year historical trend line) over the 20 year plan time frame. The second list is not constrained and includes the remaining projects that are needed but not funded under the 20-year trend-line scenario. It will be determined by WSDOT in cooperation with the Whatcom County Council of Government which mobility projects will be funded over the next 20 years in Whatcom County. Once agreement has been reached on which projects will be funded, they must then be prioritized using a cost benefit analysis to determine the order of construction. Obviously, changes in the revenue generation for transportation projects (different from the historic trend line scenario) will have a significant impact on which projects are funded and completed over the next 20 years.

Specific transportation strategies identified in the SHSP for the four main programs are as follows:

Maintenance (Program M) - Because this program deals with the day-to-day operation of the state highway system and is not project related, specific actions to be taken cannot be accurately listed in the SHSP.

Preservation (Program P) - This program focuses on the long-term health of the state highway system. It has been separated into three subprograms. The following is how these programs relate to highway strategies provided in the SHSP.

1. Pavements - This subprogram is targeted toward highway paving projects which are intended to bring the highway system in line with the lowest life cycle cost schedule. A system known as the Pavement Management System has been in operation for some time. All roadways are reviewed for pavement deficiencies every two years to determine where new

pavement is needed to meet the stated service objective for this program. Individual paving projects are not listed in the SHSP due to constantly changing needs.

2. Structures - This subprogram is designed to replace, retrofit, and renovate bridges and structures. WSDOT's Bridge and Structures Division maintains this subprogram and it is not included in the SHSP.

3. .Other Facilities - This subprogram is designed to stabilize known unstable slopes, such as potential landslide areas. The subprogram also will rebuild signals, construct truck weigh stations, and refurbish safety rest areas to extend service life and improve safety. This subprogram also will provide funding for preservation of major drainage and electrical systems. These type preservation projects are not listed in the SHSP.

Traffic Operations (Program Q) - This program is designed to facilitate the safe and efficient operation of the existing highway transportation system. Ramp metering, traffic signal timing, highway advisory radio messages, and incident response crews are some of the items of focus for this program. Because this is mainly a program that reacts to day-to-day problems which affect the highway transportation system, strategies to address these needs are not listed in the SHSP.

Improvements (Program I) - Proposed transportation strategies in the Improvement Program to address identified deficiencies for SR-548 are as follows:

Mobility - No strategies are listed in the financially constrained SHSP.

Urban and Rural Mobility Improvements - One deficiency has been identified between KP 20.89 (MP 12.98) to KP 22.28 (MP 13.85). This location falls between "H" Street and I-5, which is entirely within the city limits of Blaine, and the deficiency was verified by the traffic analysis done for this RDP. Due to localized high traffic volumes coupled with traffic from the nearby international border crossing, a 330 meter (0.2 mi.) segment of SR-548 from the intersection of the southbound I-5 ramps to the SR-548/Portal Way Intersection, will drop below LOS D before the year 2015. Adding capacity to address the projected deficiency is not currently being planned as this section has been excluded from the financially constrained SHSP. Any changes to Whatcom County's portion of the SHSP must be made in cooperation with the Whatcom County Council of Governments which is the Regional Transportation Planning Organization for all of non-metropolitan Whatcom County.

Access Control - As noted on page 1-4 of this Plan, SR-548 is a controlled access facility based on RWC 47.50. The intent of this law is to preserve, to the greatest extent possible, the safe operation and the carrying capacity of the highway. The access classifications assigned to the various route segments were made with these goals in mind. Each classification assignment recommends particular actions to achieve these goals. Driveway spacing standards are the most pertinent to SR-548. As properties are developed and existing developed properties are redeveloped, strong consideration should be given to improving the driveway spacing along the route. Each access classification recommends a minimum driveway spacing standard. These standards should be adhered to if at all

possible. Limiting properties to one driveway per ownership, designing the driveways properly, utilizing right-in and right-out only driveways, constructing dedicated turn lanes into high traffic generating developments, and pursuing the use of joint use driveways between properties are some of the actions recommended to achieve the goals of this law. Driveways on opposite sides of the road should either line up with each other or off-set to avoid conflict.

Transportation Demand Management - This is a method to reduce the number of single occupancy vehicles on the highway at any given time. Transportation alternatives such as transit, walking, or carpooling and selecting land use alternatives which reduce the demand for peak hour travel are some of the options which should be considered. Currently, the Whatcom County Transit Authority provides no transit service on SR-548. However, service to Blaine is available via I-5 at several times during the day. WSDOT is relying on the regional transit agency to provide transit routes as well as carpool programs for the residents of Whatcom County.

Nonmotorized Facilities - There is considerable bicycle and pedestrian traffic along SR-548, particularly during the summer months. Currently, shoulder widths are narrow throughout the majority of the route. Rural bicycle improvements in the SHSP are targeted for designated touring routes only. State Route 548 is not a designated rural bicycle touring route and, as such, there is no program targeted for upgrading this rural facility for safer bicycle travel. However, this plan recommends that consideration be given to increasing shoulder widths to 1.2m (4 ft.) during pavement overlay or all-weather reconstruction operations. The recommended 1.2m shoulders would also provide an area for safer pedestrian use. Sidewalks are typically found only within urban areas. Within the urbanized area of Blaine, curb, gutter, and sidewalk is already in place.

Other Improvements - Anyone developing land impacting a state highway and meeting specific impact thresholds is expected to mitigate any impacts they would impose on the highway. Mitigation measures may include right of way donations, slope easement donations, access management controls, and the funding and/or construction of roadway improvements. Depending upon the impacts, a land developer could be expected to be conditioned to do any or all of the above. Specific mitigation measures should be identified after a review and analysis of the development proposed.

Safety - No strategies are listed in the financially constrained SHSP. However, the SHSP does not list high accident locations (HALs) which are addressed within each two-year funding cycle nor does it address intersections likely to be signalized. The HAL identified at KP 18.84 (MP 11.71) will be addressed during the 1997-1999 Biennium (see page 3-6). The need for signalization, as an accident reduction measure, changes rapidly due to land use decisions and growth patterns. The installation of traffic signals and/or channelization to improve safety for the traveling public are largely reactionary in nature. For this reason it is not possible to determine where signals will be needed during the life of a long range plan. As a result, decisions to signalize particular intersections are made every two years. A tracking system known as the Intersection Priority Array is used to monitor the need for

traffic signals and/or channelization at key intersections. Intersections currently being tracked for future signal installation and/or channelization improvements, and their respective priority rank, are listed in Table 16 below:

TABLE 16 Intersection Priority Array

Kilometer Post (Mile Post)	Intersection	Priority Rank
KP 1.56 (MP 0.97)	Vista Drive	237
KP 14.42 (MP 8.96)	Bell Rd./Peace Portal Dr.	66
KP 16.43 (MP 10 21)	Loomis Trails Rd.	275
KP 19.53 (MP 12.14)	Hughes Avenue	243
KP 22.17 (MP 13.78	Birch Bay/Lynden Rd.	172
KP 22.17 (MP 13.78)	I-5 SB on Ramp/Marine Dr.	226
KP 22.17 (MP 13.78)	Marine Drive	7

The city of Blaine currently plans to signalize both ramp intersections at the I-5/SR-548 (Peace Portal Drive) Interchange. Ramp widths may also be increased to provide space for turn lanes. It is recommended that the Grandview Road/Portal Way Intersection at KP 0.47 (MP 0.29) be added to this list.

The following intersections, based on their projected 2015 level of service, should be monitored for potential channelization improvements:

TABLE 17 POTENTIAL CHANNELIZATION IMPROVEMENTS

Intersection Location	Kilometer Post (Mile Post)	Annual LOS (2015)	August LOS (2015)
Grandview Rd./I-5 NB Ramps	0.00 (0.00)	C	E
Grandview Rd./Portal Way	0.47 (0.29)	F	F
Blaine Rd./Birch Bay Lynden Rd.	14.42 (8.96)	E	F
Blaine Rd./Drayton Harbor Rd.	17.46(10.85)	C	F
Bell Rd./Peace Portal Drive	18.99(11.80)	F	F
Peace Portal Drive/H Street	21.83 (13.57)	D	F
Peace Portal Drive/I-5 SB Ramps	22.17 (13.78)	C	F
Peace Portal Drive/I-5 NB Ramps	22.28 (13.85)	F	F

Economic Initiative - No strategies are listed in the financially constrained SHSP. The Bridge and Structures Division of WSDOT maintains a statewide list of deficient structures and determines which structures will need to be upgraded within the 20 year time frame of the SHSP. Those weight restricted bridges deemed the most critical for regional mobility are carried in the SHSP. Currently, one load restricted bridge exists within the study limits. This is the Dakota Creek Bridge (No. 548/10) located at KP 18.57 (MP 11.54). The Bridge and Structures Division does not anticipate addressing this structure within the next 20 years. Due to the fact that this is an emergency route for fire trucks from the city of Blaine, we will recommend this bridge's inclusion on the 20 year list.

Environmental Retrofit - No strategies are listed in the financially constrained SHSP.

Six Year Plan

WSDOT has recently received direction from the Transportation Commission to develop a six year transportation improvement program. In essence, this program will be the first six years of the System Plan. To be in the six-year program, the project must first appear in the financially constrained System Plan based upon 20-year revenue projections and must then have prioritized at a high enough level to make the first six year cut. The proposed six year program is presented to the legislature at two year intervals. The legislature approves the entire program but only funds the first two years of program. This means many of the projects listed in the six-year program are not actually funded and could drop off the list depending on newly identified needs during the two year cycle. The projects listed in Table 18 indicate the current proposals for SR-548 per the WSDOT Operational Program Review as of August 1, l996.

TABLE 18 SIX YEAR PLAN

Kilometer Post (Mile Post)	Project Name	AD Date	Description
KP 0.08 (MP 0.05) to KP 9.54 (MP 5.93)	SR 5 to Blaine Road	Jan. 1999	Project to resurface existing roadway
KP 17.45 (MP 10.85) to KP 22.28 (MP 13.85)	Drayton Harbor Road to SR 5	Jan. 1997	Project to resurface existing roadway
KP 14.42 (MP 8.96)	Bell Rd./Portal Way	Jan. 1997	Signalize and channelize intersection

SECTION 5: ENVIRONMENTAL AND ROADSIDE PRESERVATION:

A SEPA checklist is included in this document. The checklist indicates that the development of the RDP will not cause significant impacts to the environment.

The provision of re-vegetation can provide for permanent erosion control of constructed side slopes. Vegetation also can provide a transition from highway elements into the community and visually mitigate man-made features such as highways, walls, etc. It can provide a buffer to adjacent properties. Landscape vegetation should be used as part of highway construction wherever it can significantly provide the above advantages and where it is physically feasible to provide for it.

Creeks and wetlands occur all along the route adjacent to the existing highway. Creeks include Fingulson Creek, Terrell Creek, California Creek, and Dakota Creek. Most of these wetlands are Palustrine in nature and include all non-tidal wetlands dominated by trees, shrubs, persistent emergents, and emergent mosses. Also, numerous wetlands are associated with these existing creeks. SR-548 is not within the 100 year flood plain[12].

Any construction occurring near any of the bodies of water in the area such as the two existing bridges and some creeks must take extra precautions to ensure that debris is not allowed to enter the body of water. Any creeks that are fish bearing must be protected from significantly contaminated runoff from the roadway surface as well as any roadway construction impacts.

SR-548 is not within an EPA/DOE air quality non-attainment area. Air pollution and noise may be increased as the result of increased traffic on SR-548. Air pollution emissions generally decrease as a result of increased speeds and better roadway capacity.

Future traffic volumes and speeds are not anticipated to create unacceptable noise impacts. If warranted, noise walls could be provided to furnish protection to residential areas from significant traffic noise levels.

SECTION 6: PUBLIC INVOLVEMENT AND CONSISTENCY WITH OTHER PLANS:

Public Involvement

The Northwest Region Planning Section received comments from private citizens and public officials who attended a public meeting for the SR-548 long range plan held on January 26, l995 at the Blaine City Library. There were between 25 and 30 people in attendance and five of those persons responded with comments. Most of the comments were centered on the safety of the traveling public. Suggestions such as installing additional traffic control at the intersections of Alderson Rd./Blaine Rd., Drayton Harbor Rd./Blaine Rd., Portal Way/Blaine Rd. and I-5/Bell Rd./Blaine Rd. were offered. A number of people stated that it is hard for southbound drivers, unfamiliar with the highway, to determine if the highway goes left or right as they approach California Creek. The Traffic Section has stated that they will supplement the arrow sign in the middle of the Y with an arrow on the route designation sign approaching the Y and keep the centerline striping refreshed as needed. Suggestions also were made to add shoulder width or separate bicycle lanes to help accommodate nonmotorized traffic.

Consistency With Other Plans

There are inconsistencies between this Route Development Plan (RDP) with the MPO/RTPO Transportation Plan and the City of Blaine Comprehensive Plan. This RDP recommends SR-548 be improved at the Portal Way/Grandview Rd. intersection and should be widened to four lanes from Peace Portal Dr./"H" Street to Peace Portal Drive/I-5 I/C. The level of service for this section of SR-548 is D/E, which is below the standard of LOS D for urban area. This RDP also recommends signalization at Bell Rd./Peace Portal Dr., “H” St./Peace Portal Dr., Drayton Harbor Rd./Blaine Rd., Birch Bay-Lynden Rd./Blaine Rd., and I-5 ramps/Marine Dr./Peace Portal Dr. intersections.

The City of Blaine Comprehensive Plan recommends widening SR-548 to four lanes from Lincoln Rd./Blaine Rd. to I-5/Peace Portal Drive I/C. This widening of SR-548 to Lincoln Rd. is based on the city’s Comprehensive Plan’s assumption that the Lincoln Rd. spur that exists on the west side of SR-548 will ultimately be connected to the Lincoln Rd. segment that exists on Semiahmoo Point to the west of the SR-548/Lincoln Rd. Spur. The city views the “connected” Lincoln Road as the future principal route for the Birch Bay and Semiahmoo population. The city of Blaine recommends signalization and channelization at the same locations as the state but also includes the intersections of Hughes Rd./Peace Portal Dr., Lincoln Rd./Blaine Rd., and Mitchell St./Peace Portal Dr.

The Whatcom County Rural Transportation Plan recommends widening SR-548 to four lanes from Birch Bay/Lynden Rd. to Peace Portal Drive /I-5 I/C in Blaine. The county’s recommendation is based on planned improvements to the Birch Bay/Lynden Road from Valley View Road to Harborview Road. The intersection signalization recommendations in the county plan include the Peace Portal Dr./I-5 ramps/Marine Dr. and Peace Portal Dr./Bell Rd. intersections.

Unforeseen improvements or changes to adjacent roads certainly have the ability to alter projections made for SR-548. This plan will be updated periodically and changes in the traffic patterns, land uses, accident rates, etc., will be incorporated into the latest version and used for projecting SR-548 improvement needs.

SECTION 7: PROJECT IMPLEMENTATION PLAN:

Background

The project implementation process begins with the route development plan, a long range planning document for the future 20-25 years of the highway's life. The route development plan consists of several phases, including data collection, public meetings, interagency liaison, traffic analysis, the RDP proposal, and review with comments. The final section of the RDP, Section 7 Project Implementation, is the culmination of this effort and involves many inputs from varied sources. Table 19 lists recommended projects along SR-548.

Since project implementation represents the needed improvements for the first six years or so of the route development plans life, it must be consistent with the RDP's proposal. However, rather than relying solely upon the RDP, project implementation derives its inputs from many, varied sources. These include the public, local governments, comprehensive plans, the 20-year State Highway System Plan, WSDOT Bridge Section, WSDOT Northwest Region Traffic Operations, field reviews, the WSPMS (Washington State Pavement Management System), Program Management, brainstorming, and something called "Long Range Risk Assessment."

Rather than being cost-dependent, project implementation is more "needs dependent," at least during the first stages of its development. This means that it does not initially worry so much upon whether funding is available, but is more concerned with what needs we have for the state highway in the first six years of the route development plan's life. In its final form, the Project Implementation Plan is reduced to include primarily what appear to be more cost constrained and cost effective improvements. For the purpose of the SR-548 RDP, we have chosen to look at the triple biennial period of 1995-2001. During the final stages of the implementation plan, costs and funding sources for the plan are matched.

TABLE 19 SR-548 Project Implementation Plan

Begin MP	End MP	Proposed project for programming	Additional deficiencies not currently proposed for programming	Source	Time frame needed
0.00	5.93	SR-548 - SR 5 to Blaine Road, Resurfacing, Overlay 0.15' ACP. (Est. $1,325,878)	Widen and/or Pave Shoulders (MP 0.00-5.93)	VL	97-99
			Improve Vista Drive Intersection (MP 0.97)	TR	97-99
			Clear Zone (MP 0.4-2.1)	VL	97-99
			Improve RR Xing (MP 0.31)	VL	97-99
			Flatten ditches (MP 2.1-4.9)	VL	97-99
			Modify All-way Stop at Kickerville (MP 4.93)	TR, PL	97-99
5.93	10.85	SR-548 - Blaine Rd. to Drayton Harbor Rd., Resurfacing, Overlay 0.15' ACP. (Est. $889,362)	Guardrail. (MP 5.93-6.95)	PM	97-99
			Bay Rd. Intersection Realign (MP 6.95)	TR	97-99
			Shoulder Widening and Paving (MP 5.93-10.85)	VL, LA	97-99
			Clear Zone (MP 8.4-10.85)	VL	97-99
			Ditch Flattening (MP 8.9-10.85)	VL	97-99
			Extend Lincoln Road (MP 9.95)	LA	97-99
			Sight Distance Improvements. & Modify Channelization. at Drayton Harbor Road. (MP 10.85)	TR, LA	97-99
10.85	13.85	SR-548 - Drayton Harbor Rd. to SR-5, ACP Overlay, 0.15' ACP. (Est. $922,000)	Shoulder Widening (MP 10.85-13.28)	VL	99-2001
			Ditch Flattening (MP 10.85-11.6)	VL	99-2001
			Class I Bikeway (MP 10.85-13.85)	LA	99-2001
			Bell/Peace Portal Drive Signal (MP 11.84)	TR, LA	99-2001
			Dakota Cr. Bridge Replace (MP 11.55)	FD, MA	99-2001
			I-5/548 N. Blaine I/C. Signal Ramp Intersections, Channelization, Peds.	LA, TR,	99-2001

SOURCE LEGEND: VL - Video Log TR - Region Traffic LA - Local Agency
PM - Program Mgt. MA - Maintenance FD - Fire Dept.
PL - Planning PU - Public

NOTES

1 *Washington State Department of Transportation (WSDOT) State Highway Log Planning Report,* Northwest Region, l993.

2 Tonnage classes are based on the total freight tonnage carried and is used as a measurement of the roadway's economic development importance. *WSDOT Freight and Goods Transportation System Plan,* 1995.

3 *Whatcom County Comprehensive Plan*, November 1994.

4 *RCW 47.17.807 "State Route 548,"* Public Highways and Transportation.

5 Per telephone conversation with Mr. Ken Richey of Whatcom County Transportation section and Mr. Larry Simkins of Whatcom County Parks Department on Jan. 30, l995.

6 WSDOT Northwest Region Traffic Section, Seattle, Washington.

7 *State Highway Log, Planning Report,* Northwest Region, 1996.

8 *Washington State Department of Transportation, Bridge List*, 1993.

9 *Roadside Classification Plan*, April 1, 1995.

10 WSDOT Northwest Region Utilities Section.

11 Telephone conversation with Rick Gordon of Whatcom County Transit Authority on April 25, l995.

12 *Whatcom County Comprehensive Plan* Map No. 30; November l994.

APPENDIX A

LEVEL OF SERVICE DEFINITIONS

APPENDIX B

TYPICAL ROADWAY SECTIONS

APPENDIX C

ACCIDENT DATA

APPENDIX D

ENVIRONMENTAL CHECKLIST

APPENDIX E

MINUTES FROM THE PUBLIC MEETING

APPENDIX F

SELECTED CORRESPONDENCE

APPENDIX G

WETLANDS MAPS